What Is Claimed Is:

1. An arrangement for supplying current to the solenoid valves of an electrohydraulic valve-timing system of an internal combustion engine in a controllable manner, solenoid valves being assigned to a gas-exchange actuator, comprising

- a two-stage supplying of voltage for the solenoid valves, namely the supplying of an inrush voltage from an inrush voltage source, and the supplying of a holding voltage from a holding-voltage source, the inrush voltage being greater than the holding voltage;
  - the solenoid valves being able to be actuated independently of one another for the duration of an inrush current time by an inrush current that corresponds to the applied inrush voltage, and for the duration of a holding current time by a holding current that corresponds to the applied holding voltage;
- one inrush voltage line and one holding voltage line for each solenoid valve, the inrush voltage line connecting the solenoid valve to the inrush voltage source and the holding voltage line connecting the solenoid valve to the holding voltage source;
- a ground lead leading from the solenoid valve to ground, having one ground lead disconnector for switchably disconnecting the electrical connection between the solenoid valve and ground;

wherein

- a solenoid valve group is formed from a plurality of solenoid valves (M1, M2);
- inrush voltage lines leading to the solenoid valves (M1, M2) of a solenoid valve group have a common inrush-voltage circuit section (17); and

- a voltage disconnector (18) is provided in the common inrush-voltage circuit section (17) for establishing the switchable electrical connection between the inrush-voltage source(U_A) and the solenoid valves (M1, M2) of the solenoid valve group.

2. The arrangement as recited in Claim 1, wherein the holding voltage line is designed to permanently supply the solenoid valves (M1, M2) of at least one solenoid valve group with holding voltage (U_H), the holding voltage lines leading to the solenoid valves (M1, M2) having a common holding voltage section (15).

3. The arrangement as recited in Claim 2, wherein the voltage disconnector (18) of a solenoid valve group connects the common inrush voltage section (17) to the common holding voltage section (15) of this solenoid valve group at a junction point (13); in the common holding voltage section between the holding voltage source (U_H) and the junction point (13), a diode (16) being provided which blocks the current flow from the junction point (13) to the holding voltage source (U_H); and a common line (14) for supplying the corresponding solenoid valve (M1, M2) with inrush voltage and with holding voltage preferably leading from the junction point (13) to the solenoid valves (M1, M2) of the solenoid valve group.

4. The arrangement as recited in one of the preceding claims, wherein the solenoid valves (M1, M2) of a solenoid valve group are selected in such a way that there is no overlapping of inrush-voltage actuation times with holding-voltage actuation times.

5. The arrangement as recited in one of Claims 1 through 4, wherein the ground lead disconnector (11) of the solenoid valves (M1, M2) is switchable in a clocked cycle, the make-to-break ratio being devised in such a way that when inrush voltage(U_A) is supplied, the average current flow resulting from the clocked operation corresponds to the holding current derived in response to application of the holding voltage (U_H).

6. The arrangement as recited in one of the preceding claims, wherein, on the ground connection side, each solenoid valve (M1, M2) has a feedback line (20) which connects the ground connection of the solenoid valve (M1, M2) to the inrush voltage source(U_A), a diode (21), which blocks a current flow from inrush voltage source(U_A) to the ground connection of the solenoid valve (M1, M2), being situated in the feedback line (20).

7. The arrangement as recited in one of the preceding claims, wherein first (M1) and second (M2) solenoid valves are provided; the first solenoid valves (M1) being closed in a de-energized state, and the second solenoid valves (M2) being opened in a de-energized state; each gas-exchange actuator (Zi,Ej, ZiAj, i,j=1,2) having a first (M1) and a second (M2) solenoid valve; and, in particular, at least one intake valve (E1, E2) and at least one exhaust valve (A1, A2) being provided for each cylinder (Z1, Z2,...) of the internal combustion engine; each of the intake and exhaust valves (E1, E2, A1, A2) being able to be actuated by a gas-exchange actuator.

8. The arrangement as recited in one of the preceding claims, wherein all of the solenoid valves (M1, M2) of one cylinder

of the internal combustion engine are combined in each instance into one solenoid valve group.

9. The arrangement as recited in one of Claims 1 through 7, wherein, for at least two cylinders (Z1, Z2) of the internal combustion engine in each case, the solenoid valves (M1, M2) assigned to the intake valves (E1, E2) are combined into a first solenoid valve group, and the solenoid valves (M1, M2) assigned to the exhaust valves (A1, A2) are combined into a second solenoid valve group.

10. The arrangement as recited in Claim 9, wherein the at least two cylinders (Z1, Z2) are selected from the cylinders of the internal combustion engine in such a way that no overlapping of inrush-voltage actuation time with holding-voltage actuation time occurs within the solenoid valve groups.

11. The arrangement as recited in one of Claims 1 through 7, wherein, for one cylinder group of a plurality of cylinders (Z1, Z2) of the internal combustion engine, all first solenoid valves (M1) of the intake valves (E1, E2) are connected to form a first solenoid valve group; all first solenoid valves (M1) of the exhaust valves (A1, A2) are connected to form a second solenoid valve group; and all second solenoid valves (M2) of the gas-exchange valves are connected to form a third solenoid valve group.

12. The arrangement as recited in Claim 11, wherein one cylinder group is formed which contains all cylinders (Z1, Z2) of the internal combustion engine.

13. The arrangement as recited in Claim 11, wherein at least two cylinder groups are formed, one cylinder group containing all cylinders (Z1, Z2) of one cylinder bank in each case.

14. The arrangement as recited in Claim 11, wherein at least two cylinder groups of a plurality of cylinders (Z1, Z2) each are formed, the cylinders (Z1, Z2) of one cylinder group being selected in such a way that, within the solenoid valve groups of the cylinder groups, no overlapping of inrush-voltage actuation time and of holding-voltage actuation time occurs, and each cylinder group preferably containing the same number of cylinders (Z1, Z2).

15. An arrangement for supplying current to the solenoid valves of an electrohydraulic valve-timing system of an internal combustion engine in a controllable manner, solenoid valves being assigned to a gas-exchange actuator, comprising

- a holding voltage supplied from a holding voltage source;
    - the solenoid valves being able to be actuated independently of one another;
- an inrush voltage line which connects the solenoid valve to the inrush voltage source;
- a ground lead leading from the solenoid valve to ground, having one ground lead disconnector for switchably disconnecting the electrical connection between the solenoid valve and ground;

wherein

- a solenoid valve group is formed from a plurality of solenoid valves (M1, M2);

- inrush voltage lines leading to the solenoid valves (M1, M2) of a solenoid valve group have a common inrush-voltage circuit section (17); and

a voltage disconnector (18) is provided in the common inrush-voltage circuit section (17) for establishing the switchable electrical connection between the inrush voltage source(U_A) and the solenoid valves (M1, M2) of the solenoid valve group; by the timed switching of the voltage disconnector (18) using an appropriate make-to-break ratio, an average voltage being produced that corresponds to a holding voltage (U_H); the solenoid valves (M1, M2) of a solenoid valve group being selected in such a way that there is no overlapping of inrush-voltage actuation times with holding-voltage actuation times.

16. The arrangement as recited in Claim 15, wherein, on the ground-connection side, each solenoid valve (M1, M2) has a feedback line (20) which connects the ground connection of the solenoid valve (M1, M2) to the inrush voltage source(U_A), a diode (21), which blocks a current flow from inrush voltage source(U_A) to the ground connection of the solenoid valve (M1, M2), being situated in the feedback line (20).

17. The arrangement as recited in Claim 15 or 16, wherein first (M1) and second (M2) solenoid valves are provided; the first solenoid valves (M1) being closed in a de-energized state, and the second solenoid valves (M2) being opened in a de-energized state; each gas-exchange actuator preferably having a first (M1) and a second (M2) solenoid valve; and, in particular, at least one intake valve (E1, E2) and at least one exhaust valve (A1, A2) being provided for each cylinder (Z1, Z2) of the internal combustion engine; each of the intake (E1, E2) and exhaust

valves (A1, A2) being able to be actuated by a gas-exchange actuator.

18. The arrangement as recited in one of Claims 15 through 17, wherein all of the solenoid valves (M1, M2) of one cylinder (Z1, Z2) of the internal combustion engine are combined in each instance into one solenoid valve group.

19. The arrangement as recited in one of Claims 15 through 18, wherein, for at least two cylinders (Z1, Z2) of the internal combustion engine in each case, the solenoid valves (M1, M2) assigned to the intake valves (E1, E2) are combined into a first solenoid valve group, and the solenoid valves (M1, M2) assigned to the exhaust valves (A1, A2) are combined into a second solenoid valve group.

20. The arrangement as recited in Claim 19, wherein one cylinder group is formed which contains all cylinders (Z1, Z2) of the internal combustion engine.

21. The arrangement as recited in Claim 19, wherein at least two cylinder groups are formed, one cylinder group containing all cylinders (Z1, Z2) of one cylinder bank in each case.